APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/364,308	07/30/1999	CAO THANH PHAN	Q55268	9268

7590   03/13/2003

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EXAMINER
SHAH, CHIRAG G

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _17 January 2003_ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-16_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-16_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4)☐ Interview Summary (PTO-413) Paper No(s). _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____ .

DETAILED ACTION

[handwritten annotations]

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claim 1-4 rejected under 35 U.S.C. 102(e) as being anticipated by Lee (U.S. Patent No.

6,122,283).

Referring to claims 1, 2, and 4, Lee teaches of compressed topology aggregation of a

group of switching nodes and interconnecting links. Lee further teaches in figure 3 and claim 1

and respective portions of the specification of routing between a source node and a destination

node network having nodes connected by links, compression is used on at least one of the links.

Lee teaches in column 5 of performing at least 2 calculations such as Dijkstra and Floyd-

Warshall methodologies for deriving the compressed topology aggregation of figure 3. The

Dijkstra methodology is used to determine shortest paths from a given vertex to all the vertices

and the Floyd-Warshall determines shortest paths from each vertex to every other vertex. Thus,

the method performs at least two routing calculations for a given number of compressions,

routing calculation comprising a first routing information for a number of compressions less than

said given number, and a second routing calculation for g given number of compression using

obtained from the first routing calculation as claims. Lee further teaches in column 5 lines 35 to

column 6 lines 47 that the method further comprises choosing a cost or metric function wherein

the routing minimizes the cost function as claims. Lee as disclosed before teaches in column 5

of a routing calculation for a given number of compressions uses the Dijkstra algorithm and

verifies the number of compressions when adding a node to the routes as claims.

Referring to claims 3, Lee teaches in claims 2, 9, and 10 and respective portions of the

specification of a routing calculation for a given number of compressions comprises at a node

where the number of compressions from the source node is equal to the given number, seeking

and saving for a subsequent routing calculation adjacent links on which compression is used as

claim.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 5-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent

No. 6,122,283) in view of Gittins (U.S. Patent No. 5,638,363).

Referring to claims 5-9 and 14-16, Lee teaches of routing between source and destination

nodes connected by links wherein compression is used on at least one of the links and

performing routing calculations for a number of compressions. Lee fails to teach of network

further comprising overflow links to an external network, wherein overflow routing calculations

comprise a first overflow routing calculation for a number of overflows less than given number and second overflow routing calculation for a number of overflows and a given number of compressions using information obtained from the first overflow routing calculation. Lee further fails to teach of a cost function representative of the cost of overflows and that routing calculation are effected for a given number of overflows by varying the number of compressions and then by varying the number of overflows. Lee also fails to teach that cost function accounts for occupancy of resource and charges incurred because of overflow in the network. Gittin teaches of a method of transmitting data via bandwidth managing device comprising the step of compressing data for guaranteeing a minimum level of bandwidth over a link. Gittin discloses in column 4 that the bandwidth manager of the first communications link includes means for interfacing a plurality of user's lines, means for detecting overflow conditions and for establishing an additional overflow link to an alternative network. Gittin further discloses in claims 34 and 35 that the bandwidth manger of the first communications link performs at least 2 calculations in terms of means for converting signaling data and analyzing data to be transmitted and multiplexing prior to identifying overflow conditions. This suggests that routing calculations are directly effected for a given number of overflows by varying the number of compression and then varying the number of overflows since if the capacity is exceeded by means of compression, the overflow link will have to carry on the additional load. Thus, choosing a cost function such as the Dijkstra algorithm for overflows would enable cost function to be minimized. The cost function which as disclosed before is a represented by metric and accounts for the number of resources in the network and increases for charges incurred because of overflows due to exceeding the threshold. Therefore, it would have

been obvious to one of ordinary skill in the art to modify the teachings of Lee to include the

teaching of Gittin in order to manage routing of compressed links when detecting an overflow

conditions in a network.

Referring to claim 10, 11, and 13, as disclosed before, Lee teaches of compressed

topology aggregation of a group of switching nodes and interconnecting links. Lee further

teaches in figure 3 and claim 1 and respective portions of the specification of routing between a

source node and a destination node network having nodes connected by links, compression is

used on at least one of the links. Lee teaches in column 5 of performing at least 2 calculations

such as Dijkstra and Floyd-Warshall methodologies for deriving the compressed topology

aggregation of figure 3. The Dijkstra methodology is used to determine shortest paths from a

given vertex to all the vertices and the Floyd-Warshall determines shortest paths from each

vertex to every other vertex. Thus, the method performs at least two routing calculations for a

given number of compressions, routing calculation comprising a first routing information for a

number of compressions less than said given number, and a second routing calculation for g

given number of compression using obtained from the first routing calculation as claims. Lee

further teaches in column 5 lines 35 to column 6 lines 47 that the method further comprises

choosing a cost or metric function wherein the routing minimizes the cost function as claims.

Lee as disclosed before teaches in column 5 of a routing calculation for a given number of

compressions uses the Dijkstra algorithm and verifies the number of compressions when adding

a node to the routes as claims. Although it is known in the art that the Dijkstra's algorithm can

be performed with compression or without compressions, Lee fails to explicitly teach of

performing a first routing calculation with no compression. Gittins discloses in column 4 where

bandwidth manager performs calculation that detects the overflow conditions without compression and provides a means for compressing the data via second complementary bandwidth managing device. Thus, the two calculations as disclosed by Lee and Gittins respectively can be used for routing calculation for given number of compressions and overflows conditions. Therefore, it would have been obvious to one of ordinary skill in the art to modify the teachings of Lee to include the teachings of Gittins in order to efficiently route compressed links using the most optimal cost functions.

Referring to claim 12, Lee teaches in claims 2, 9, and 10 and respective portions of the specification of a routing calculation for a given number of compressions comprises at a node where the number of compressions from the source node is equal to the given number, seeking and saving for a subsequent routing calculation adjacent links on which compression is used as claim.

Response to Arguments

5.   Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any response to this action should be mailed to:

> Commissioner of Patents and Trademarks
> Washington, D.C. 20231

> **Or faxed to:**

(703)305-3988, (for formal communications intended for entry)

Or:

(703)305-3988 (for informal or draft communications, please label "Proposed" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag G Shah whose telephone number is 703-305-5639. The examiner can normally be reached on M-F 7:30 to 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 301-305-4366. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

cgs
March 7, 2003

Ajit Patel
Primary Examiner